

6L6-GB

BEAM POWER TUBE

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GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage	6.3	ac or dc volts
Current	0.9	amp

Direct Interelectrode Capacitances (Approx.):°

Grid No.1 to plate	0.9	μμf
Grid No.1 to cathode & grid No.3, grid No.2, and heater	11.5	μμf
Plate to cathode & grid No.3, grid No.2, and heater	9.5	μμf

Mechanical:

Mounting Position	Any
Maximum Overall Length	4-1/4"
Maximum Seated Length	3-11/16"
Maximum Diameter	1-9/16"
Bulb	T12

Base. . . . . . . .Medium-Shell Octal 7-Pin (JETEC No.B7-12), Short Medium-Shell Octal 7-Pin with External Barriers, Style A (JETEC No.B7-111), or Short Medium-Shell Octal 7-Pin with External Barriers, Style B (JETEC No.B7-119)

Basing Designation for BOTTOM VIEW. 7AC

Pin 1 - No Connection
Pin 2 - Heater
Pin 3 - Plate
Pin 4 - Grid No.2
Pin 5 - Grid No.1
Pin 7 - Heater
Pin 8 - Cathode, Grid No.3

AF POWER AMPLIFIER - Class A_1

Maximum Ratings, *Design-Center Values:*

PLATE VOLTAGE	360 max.	volts
GRID-No.2 (SCREEN-GRID) VOLTAGE	270 max.	volts
GRID-No.2 INPUT	2.5 max.	watts
PLATE DISSIPATION	19 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	180 max.	volts
Heater positive with respect to cathode	180 max.	volts

Typical Operation and Characteristics:

Fixed-Bias Operation

Plate Voltage	200	250	300	350	volts
Grid-No.2 Voltage	200	250	200	250	volts
Grid No.1 (Control-Grid) Voltage	-11.5	-14	-12.5	-18	volts

° Without external shield.

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6L6-GB

6L6-GB

BEAM POWER TUBE

Peak AF Grid-No.1 Voltage. .	11.5	14	12.5	18	volts
Zero-Signal Plate Current. .	52	72	48	54	ma
Max.-Signal Plate Current. .	57	79	55	66	ma
Zero-Signal Grid-No.2 Current.	3.5	5	2.5	2.5	ma
Max.-Signal Grid-No.2 Current.	5.7	7.3	4.7	7	ma
Plate Resistance (Approx.) .	35000	22500	35000	33000	ohms
Transconductance	5300	6000	5300	5200	μmhos
Load Resistance.	3000	2500	4500	4200	ohms
Total Harmonic Distortion. .	9	10	11	15	%
Max.-Signal Power Output . .	4	6.5	6.5	10.8	watts

Cathode-Bias Operation

Plate-Supply Voltage	200	250	300	volts
Grid-No.2 Supply Voltage	200	250	200	volts
Cathode Resistor	186	167	218	ohms
Peak AF Grid-No.1 Voltage. . . .	11.5	14	12.7	volts
Zero-Signal Plate Current. . . .	55	75	51	ma
Max.-Signal Plate Current. . . .	56	78	54.5	ma
Zero-Signal Grid-No.2 Current. .	4.2	5.4	3	ma
Max.-Signal Grid-No.2 Current. .	5.6	7.2	4.6	ma
Load Resistance.	3000	2500	4500	ohms
Total Harmonic Distortion. . . .	9	10	11	%
Max.-Signal Power Output	4	6.5	6.5	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:
- For fixed-bias operation . . . . 0.1 max. megohm
- For cathode-bias operation . . . . 0.5 max. megohm

AF POWER AMPLIFIER - Class A_1

Triode Connection - Grid No.2 Connected to Plate

Maximum Ratings, *Design-Center Values:*

PLATE VOLTAGE.	275 max.	volts
PLATE DISSIPATION.	19 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode.	180 max.	volts
Heater positive with respect to cathode.	180 max.	volts

Typical Operation and Characteristics:

	Fixed Bias	*Cathode Bias*	
Plate-Supply Voltage	250	250	volts
Grid-No.1 (Control-Grid) Voltage	-20	-	volts
Cathode Resistor	-	490	ohms
Peak AF Grid-No.1 Voltage. . . .	20	20	volts
Zero-Signal Plate Current. . . .	40	40	ma
Max.-Signal Plate Current. . . .	44	42	ma
Plate Resistance (Approx.) . . .	1700	-	ohms



6L6-GB

6L6-GB

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	Fixed Bias	Cathode Bias	
Amplification Factor	8	–	
Transconductance	4700	–	µmhos
Load Resistance	5000	6000	ohms
Total Harmonic Distortion	5	6	%
Max.-Signal Power Output	1.4	1.3	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:
- For fixed-bias operation . . . . 0.1 max. megohm
- For cathode-bias operation . . . . 0.5 max. megohm

PUSH-PULL AF POWER AMPLIFIER - Class A_1

Maximum Ratings, *Design-Center Values:*

PLATE VOLTAGE	360 max.	volts
GRID-No.2 (SCREEN-GRID) VOLTAGE	270 max.	volts
GRID-No.2 INPUT	2.5 max.	watts
PLATE DISSIPATION	19 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	180 max.	volts
Heater positive with repsect to cathode	180 max.	volts

Typical Operation and Characteristics:

Unless otherwise specified, values are for 2 tubes

	Fixed Bias		Cathode Bias		
Plate Voltage	250	270	250	270	volts
Grid-No.2 Voltage	250	270	250	270	volts
Grid-No.1 Voltage	-16	-17.5	–	–	volts
Cathode Resistor	–	–	124	124	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage	32	35	35.6	28.2	volts
Zero-Signal Plate Current	120	134	120	134	ma
Max.-Signal Plate Current	140	155	130	145	ma
Zero-Signal Grid-No.2 Current	10	11	10	11	ma
Max.-Signal Grid-No.2 Current	16	17	15	17	ma
Plate Resistance (Approx., per tube)	24500	23500	–	–	ohms
Transconductance . (Per tube)	5500	5700	–	–	µmhos
Effective Load Resistance (Plate to plate)	5000	5000	5000	5000	ohms
Total Harmonic Distortion	2	2	2	2	%
Max.-Signal Power Output	14.5	17.5	13.8	18.5	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:
- For fixed-bias operation . . . . 0.1 max. megohm
- For cathode-bias operation . . . . 0.5 max. megohm

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6L6-GB

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PUSH-PULL AF POWER AMPLIFIER - Class AB_1

Maximum Ratings, *Design-Center Values:*

PLATE VOLTAGE	360 max.	volts
GRID-No.2 (SCREEN-GRID) VOLTAGE	270 max.	volts
GRID-No.2 INPUT	2.5 max.	watts
PLATE DISSIPATION	19 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	180 max.	volts
Heater positive with respect to cathode	180 max.	volts

Typical Operation:

Values are for 2 tubes

	Fixed Bias		Cathode Bias	
Plate Voltage	360	360	360	volts
Grid-No.2 Voltage	270	270	270	volts
Grid-No.1 (Control-Grid) Voltage*	-22.5	-22.5	–	volts
Cathode Resistor	–	–	248	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage	45	45	40.6	volts
Zero-Signal Plate Current	88	88	88	ma
Max.-Signal Plate Current	132	140	100	ma
Zero Signal Grid-No.2 Current	5	5	5	ma
Max.-Signal Grid-No.2 Current	15	11	17	ma
Effective Load Resistance (Plate to plate)	6600	3800	9000	ohms
Total Harmonic Distortion	2	2	4	%
Max.-Signal Power Output	26.5	18	24.5	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:*		
For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.5 max.	megohm

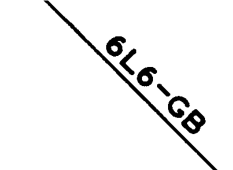
PUSH-PULL AF POWER AMPLIFIER - Class AB_2

Maximum Ratings, *Design-Center Values:*

PLATE VOLTAGE	360 max.	volts
GRID-No.2 (SCREEN-GRID) VOLTAGE	270 max.	volts
GRID-No.2 INPUT	2.5 max.	watts
PLATE DISSIPATION	19 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	180 max.	volts
Heater positive with respect to cathode	180 max.	volts

* The type of input coupling used should not introduce too much resistance in the grid-No.1 circuit. Transformer- or impedance-coupling devices are recommended.





6L6-GB

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Typical Operation:

Values are for 2 tubes

Plate Voltage	360	360	volts
Grid-No.2 Voltage	225	270	volts
Grid-No.1 (Control-Grid) Voltage	-18	-22.5	volts
Peak AF Grid-No.1-to-Grid-No.1 Voltage	52	72	volts
Zero-Signal Plate Current	78	88	ma
Max.-Signal Plate Current	142	205	ma
Zero-Signal Grid-No.2 Current	3.5	5	ma
Max.-Signal Grid-No.2 Current	11	16	ma
Effective Load Resistance (Plate to plate)	6000	3800	ohms
Total Harmonic Distortion	2	2	%
Max.-Signal Power Output	31	47	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:▲

For fixed-bias operation	0.1 max. megohm
For cathode-bias operation	Not recommended

▲ Driver stage should be capable of supplying the specified driving power at low distortion to the No.1 grids of the AB_2 stage. To minimize distortion, the effective resistance per grid-No.1 circuit of the AB_2 stage should be held at a low value. For this purpose, the use of transformer coupling is recommended.

1 9/16" MAX.

T12 BULB

MEDIUM-SHELL OCTAL 7-PIN BASE JETEC № B7-12

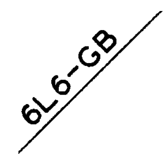
SHORT MEDIUM-SHELL OCTAL 7-PIN BASE WITH EXTERNAL BARRIERS STYLE A: JETEC № B7-111 OR STYLE B: JETEC № B7-119

3 11/16" MAX.

4 1/4" MAX.

92CS-9252R1

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6L6-GB

AVERAGE PLATE CHARACTERISTICS

E_f = 6.3 VOLTS
GRID-Nº1 VOLTS = 0

GRID-Nº2 VOLTS-EC2 = 300
250
200
EC2 = 150
100
50

PLATE VOLTS: 0, 100, 200, 300, 400, 500, 600, 700

PLATE MILLIAMPERES: 400, 300, 200, 100

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AVERAGE CHARACTERISTICS

E_f = 6.3 VOLTS
GRID-№2 VOLTS=250

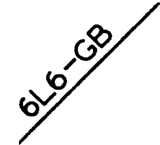
E_{C1}=+15
+10
+5
GRID-№1 VOLTS=E_{C1}=0
−5
−10
−15
E_{C1}=−20
−25
−30
−35
−28
−14
E_{C1}=0
I_{C2}

PLATE VOLTS: 0, 100, 200, 300, 400, 500, 600, 700

PLATE (I_b) OR GRID-№2 (I_{C2}) MILLIAMPERES: 400, 300, 200, 100, 0

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92CM−4581R2





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AVERAGE PLATE CHARACTERISTICS

TRIODE CONNECTION

E_f = 6.3 VOLTS
GRID №2 CONNECTED TO PLATE.

GRID-№1 VOLTS E_{C1}=0

+15
+7.5
-7.5
-15
-22.5
-30
-37.5
E_{C1}=-45
-52.5
-60
-67.5
-75
-82.5
-90

PLATE VOLTS: 0, 100, 200, 300, 400, 500, 600, 700

PLATE MILLIAMPERES: 0, 50, 100, 150, 200

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92CM-4966R2



6L6-GB

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OPERATION CHARACTERISTICS

E_f = 6.3 VOLTS
PLATE VOLTS = 250
GRID-№2 VOLTS = 250
GRID-№1 VOLTS = -14
SIGNAL VOLTS (RMS) = 10

POWER OUTPUT
TOTAL DISTORTION

POWER OUTPUT—WATTS: 1, 2, 3, 4, 5, 6, 7, 8

TOTAL HARMONIC DISTORTION—PER CENT: 0, 2, 4, 6, 8, 10, 12, 14

LOAD RESISTANCE—OHMS: 0, 1000, 2000, 3000, 4000, 5000

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92CM-4608R1